

identifying, on said network platform, first and second service providers and associated first and second service provider information based upon said determined location of said mobile unit wherein said first service provider is farther from said mobile unit than said second service provider;

69 accessing stored subscriber independent prioritization information relating to a prioritization for presenting service provider information to a subscriber, said stored prioritization information establishing a basis independent of proximity for prioritizing said first and second service provider information;

based upon said stored prioritization information, prioritizing said first and second service provider information, wherein said first location information is assigned a higher priority than said second location information; and

outputting both said first and second service information on said mobile unit based upon said step of prioritizing.

REMARKS

This application has been carefully reviewed in light of the Examiner's action dated June 21, 2002. Each of the claims has been amended, directly or via dependency, and new Claim 76 has been added. In addition, the related application information paragraph, originally added by preliminary amendment dated January 8, 2001, has been amended to delete certain unnecessary matters. Reconsideration and full allowance are respectfully requested.

In the Examiner's action, Claim 69 was rejected under 35 U.S.C. §112 as not being enabled. Claim 69 has been amended to obviate this rejection. The Examiner also rejected

Claims 62, 63, and 66 under 35 U.S.C. §112 due to lack of sufficient antecedent basis. The above amendments are believed to obviate this rejection.

The Examiner has also made a number of rejections under 35 U.S.C. §102 and 103 as discussed below. These rejections are based on a number of patents, including patents cited under §102(e). Applicant does not admit that these patents are prior art to the present application, but merely submits by the arguments below that the claims as presented are distinguishable from such patents.

Specifically, the Examiner rejected Claims 40, 42, 45-55, 67, and 70-75 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,108,533 by Brohoff ("Brohoff"). Applicant respectfully transverses this rejection for the reasons set forth below.

Independent Claim 40 involves selecting a subset of service information identified based on mobile unit location for presentation to the mobile unit. That is, service provider information identified based on a location analysis is not merely prioritized based on certain reference information, but rather is narrowed down to a subset of information. Specifically, the method of Claim 40 involves receiving a service request, obtaining network assisted location information regarding the mobile unit, identifying a number of candidate service providers including first and second service providers, storing selection information, selecting one of the first and second service provider information based on the stored selection information, and outputting the selected service provider information to the mobile unit.

In this manner, the amount of service provider information transmitted to a mobile unit can be reduced. Thus, for example, if information regarding many hotels is retrieved based on a location analysis, a smaller set of information can be transmitted to the mobile unit, e.g., tailored

based on a subscriber profile. The resulting subset of information may be more convenient for the subscriber to use and avoids unnecessary use of network resources.

Brohoff discloses a geographical database that can be used to provide information regarding local services to wireless network subscribers. The associated system of Brohoff involves dividing the wireless network into a number of zones. When the system receives a service request from a subscriber, it identifies proximate service providers based on the network zones. The responsive information reported to the subscriber can be ordered “with respect to the proximity of relationships to the zone and geographical area of the mobile station.” Brohoff does not disclose the claimed methodology relating to identifying a number of candidate service providers from a database of service providers based on mobile unit location and selecting a subset of the candidate service providers based on stored selection information. Accordingly, Brohoff cannot achieve the advantages of the claimed invention, including reducing the amount of information transmitted to the mobile unit based on selection information. Applicant therefore respectfully submits that independent Claim 40 and its dependent claims are patentable over Brohoff.

Independent Claim 67 is directed to a method for providing location based services that involves converting network assisted location information into another form, including geographical coordinates. Specifically, the method involves receiving a service request from a mobile unit, obtaining location information using a network assisted location finding technology, converting the location information from a first form into a second form that includes geographical coordinates, identifying service provider information based on the converted location information, and outputting the service provider information to the mobile unit.

The claimed invention provides a variety of advantages in a variety of location based services contexts. For example, location information may be provided in a form other than geographical coordinates such as a cell identifier or a cell sector identifier. This may occur where other location sources are unavailable in certain areas of the network or where another source, such as GPS information, is temporarily unavailable such as due to inadequate satellite contact (e.g., associated with urban canyon effects). In such cases, it may be useful to convert the available information (e.g., a cell identifier) into geographical coordinates (e.g. associated with a cell center) in order to enable certain functionality such as identifying the closest service providers or service providers within a given radius. Such functionality or the associated applications might otherwise be rendered inoperative under such circumstances.

As noted above, Brohoff involves identifying service information based on an analysis related to certain network zones. In this regard, received location information may be converted into zone information. However, Brohoff does not disclose or suggest converting received location information into another form that includes coordinates. Indeed, if Brohoff were for some reason to convert received location information into geographical coordinates, a further conversion into zone information would apparently be necessary in order to enable its zone comparison algorithm. Accordingly, Brohoff can not achieve the advantages associated with the claimed invention, including the noted advantages associated with obtaining geographical coordinates based on cell identification or similar network topology information for enhanced availability of certain location based service functionality. Therefore, Applicant respectfully submits that Claim 67 and its dependent claims are patentable over Brohoff and this rejection should be withdrawn.

The Examiner also rejected Claims 41, 56-61, 64, 65, and 68 under 35 U.S.C. Section 103(a) as being unpatentable over Brohoff in view of U.S. Patent No. 6,353,743 by Karmel ("Karmel"). This rejection is respectfully traverse for reasons set forth in detail below. Claim 41 is dependent from Claim 40. As discussed above, Claim 40 involves identifying a number of candidate service providers from a database of service providers and selecting a subset of the identified service providers based on selection information. This allows for reducing the amount of information transmitted to the mobile unit, e.g., based on a user profile.

As discussed above, Brohoff does not disclose or suggest the claimed methodology. In particular, Brohoff involves a zone comparison system where service information may be ordered based on proximity relationships associated with the zones. Brohoff does not involve identifying candidate service providers from a database and selecting a subset of the candidate service providers based on selection information.

Karmel discloses a positioning system using packet radio for locating a mobile unit. In particular, Karmel's location system involves using the subscriber handset to receive GPS signals, using a packet radio network to obtain differential correction information, then using the GPS information and the differential correction information to determine a subscriber location. Once this information is obtained, it can be uploaded to the network together with a service information request to obtain responsive information.

Initially, it is respectfully submitted that the combination proposed by the Examiner is improper. In particular, as noted above, the Brohoff system identifies service providers based on a zone comparison. Accordingly, the location information for the mobile unit must be related to a zone definition. This is conveniently accomplished by using a cell identifier. If information was provided in the form of geographical coordinates, in the manner disclosed by Karmel, it

would be necessary to convert the information into zone related information. Moreover, the incremental increase in accuracy over the already accurate GPS information that is provided via the Karmel differential correction analysis represents an unnecessary use of resources given that the zone based comparison of Brohoff involves a very coarse location comparison. Accordingly, it is respectfully submitted that one skilled in the art would not be motivated to make the proposed combination of Brohoff and Karmel as such a combination would involve a substantial use of network resources to obtain location information which, in the end, may be superfluous in the Brohoff system.

In any event, the proposed combination would not yield the subject matter of Claim 41. In particular, the proposed combination would not disclose or suggest the claimed selection of a subset of service provider information from the candidate service providers identified based on the location of the mobile unit. Accordingly, the proposed combination would not yield the associated advantages, including advantages relating to reducing the total amount of information transmitted to the mobile unit based on the selection information. Accordingly, Applicant respectfully submits that this rejection should be withdrawn.

Independent Claim 56 involves performing distance determinations based on location information from a source independent of a mobile unit. There are a number of reasons why it is desirable to obtain location information from a source independent of the mobile unit. First, many mobile units do not include handset based location equipment such as GPS transceivers. It is desirable to be able to service such subscribers. Additionally, as noted above, in certain areas of wireless networks or at certain times, handset-based location information may not be available. It is desirable to allow applications to function even at such locations and at such

times. However, information available from other sources such as cell identification information may not be received in a form that is appropriate for distance determinations.

Accordingly, the method of Claim 56 involves receiving a service request, obtaining on a network platform location information from a source independent from a mobile unit, identifying first and second service providers based on the location information, providing the location information in a form suitable for distance determinations, determining the distance of each of the service providers from the mobile unit and outputting first and second service provider information to the mobile unit based on the determined distances. By virtue of this methodology, location information from a source independent of the handset can be used for providing functionality related to distance determinations in the context of location based service applications.

As the Examiner has noted, Brohoff does not disclose providing the location information in a form suitable for distance determinations, determining the distance of the service providers relative to the mobile unit and outputting the service provider information based on the distance determinations. Rather, Brohoff involves a zone comparison methodology as discussed above. Karmel is dependent on receiving handset based location information. That is, Karmel involves obtaining GPS information at the handset, obtaining differential correction information at the handset, and uploading a resulting location from the handset to the system.

As argued above, Applicant submits that the proposed combination of Brohoff and Karmel is improper. In any event, the proposed combination does not yield the claimed subject matter. In particular, the proposed combination does not disclose or suggest obtaining location information from a source independent of the handset, providing that location information in a form suitable for distance determinations and then performing associated distance determinations

and providing an output based thereon. Consequently, the proposed combination would not yield the advantages associated with the present invention, including the advantages related to enabling distance based functionality even where handset based location information is unavailable.

Applicant therefore respectfully submits that Claim 56 and its dependent claims are patentable over Brohoff and Karmel and this rejection should be withdrawn.

Claims 64 and 65 are dependent from independent Claim 62. Claim 62 involves a “location gateway” for aggregating location information from multiple sources that are independent of the wireless transceiver. Specifically, the associated method involves receiving first location information from a first system independent of the wireless transceiver, receiving second location information from a second system independent of the wireless transceiver, determining a location of the wireless transceiver by accessing a database that includes the information from each of the location systems, identifying at least one service provider, and transmitting associated service provider information to the wireless transceiver. As noted above, certain sources of location information may not be available for all subscribers at all areas of a wireless network at all times. The present invention enables greater application availability by using a location gateway to support applications for transmitting service information to wireless units.

Such subject matter is not disclosed or suggested by Brohoff and Karmel. As argued above, Applicant respectfully submits that the proposed combination is improper. In any event, the proposed combination does not yield the subject matter of Claim 64 and 65. In particular, neither of those patents involves using a location gateway to support location based service application or providing service information to a wireless unit. Brohoff notes the existence of various types of location finding technologies, but does not disclose or suggest a gateway for

aggregating information from multiple sources or any advantages associated therewith. Indeed, given the coarse zone comparison methodology of Brohoff which may be implemented using ubiquitous cell identification information, it is respectfully submitted that Brohoff would not have motivated a skilled artisan to make the claimed invention. Karmel is specifically limited to handset dependent location determinations. Accordingly, Karmel does not disclose or suggest the use of a single mobile unit independent source, much less a location gateway for aggregating information from multiple such sources. Accordingly, Applicant respectfully submits that Claims 64 and 65 are patentable over Brohoff and Karmel and this rejection should be withdrawn.

Claim 68 is dependent on independent Claim 67. As noted above, Claim 67 involves receiving location information from a source independent of a mobile unit, converting that received information into a second form, including coordinate information and using the converted location information to provide service information to the mobile unit. As discussed above, such methodology is useful to enable certain application functionality even at certain times or at certain locations where handset based information may be unavailable.

It is respectfully submitted that Claim 68 is patentable over Brohoff and Karmel. As argued above, Applicant respectfully submits that the proposed combination is improper. In any event, the proposed combination does not yield the subject matter of Claim 68. In particular, as discussed above, Brohoff does not involve converting location information from a first form into a second form that involves coordinates. Indeed, if the information were for some reason converted into a form involving coordinates, a further conversion would apparently be necessary in order to enable the zone comparison of Brohoff. Karmel is specifically limited to handset based location technologies. Accordingly, Applicant respectfully submits that the proposed

combination does not yield the subject matter of Claim 68 and this rejection should be withdrawn.

Claims 43 and 44 were rejected under 35 U.S.C. §103(a) as being unpatentable over Brohoff in view of U.S. Patent No. 6,157,841 by Bolduc, et al. ("Bolduc"). This rejection is respectfully traverse for reasons set forth in detail below.

Claims 43 and 44 depend from independent Claim 40. As noted above, independent Claim 40 involves selecting a subset of the service information identified based on mobile unit location for presentation to the mobile unit. In this manner, the amount of service provider information transmitted to a mobile unit can be reduced. The resulting subset information may be more convenient for the subscriber to use and avoids unnecessary use of network resources.

As further discussed above, Brohoff does not disclose the claim methodology relating to identifying a number of candidate service providers from a database of service providers based on mobile unit location and selecting a subset of the candidate service providers based on storage selection information.

Bolduc is directed to a cellular phone network that provides location-based information. The Examiner has cited Bolduc as disclosing subject matter relating to subscriber-defined prioritization criterion information. In this regard, Bolduc includes the following disclosure:

Further, the order that the location-based information is presented to each user may be varied based on stored preferences of each user. These preferences are stored at the server 32.

Column 4, lines 30-33 (emphasis added). Such disclosure relates only to ordering of the selected service information and does not disclose or suggest the provision of a subset of service information. Accordingly, the Bolduc system does not provide the advantages of the claimed invention including advantages relating to reducing the amount of information transmitted to the

mobile unit. Applicant therefore respectfully submits that the proposed combination of Brohoff and Bolduc, assuming arguendo that such combination is proper, does not yield the subject matter of Claims 43 and 44 and this rejection should be withdrawn.

Claims 62, 63 and 66 were rejected under 35 U.S.C. Section 103 as being unpatentable over Brohoff in view of U.S. Patent No. 5,303,297 by Hillis ("Hillis"). This rejection is respectfully traverse for reasons set forth in detail below.

As discussed above, Claim 62 involves a location gateway for aggregating location information from multiple sources that are independent of the wireless transceiver. The claimed invention thereby enables greater application availability by using the location gateway to support applications for transmitting service information to wireless units.

As further discussed above, Brohoff does not disclose or suggest a gateway for aggregating information from multiple sources or any advantages therewith. The Examiner cites Hillis as disclosing a database that includes first and second location information, specifically from a cellular-based system and a GPS-based system. In this regard, Hillis discloses certain arrangements for locating a mobile unit, including "by use of the cell location", by use of a global positioning system or combinations thereof. Applicant respectfully submits that this disclosure does not suggest a database for aggregating location information from multiple sources but rather merely indicates alternative sources that may be used in a single source system (e.g., certain location sources may use GPS information together with cell information to yield a single instance of location information which may be used or stored). In any event, Hillis does not disclose the claimed database for aggregating location information from multiple sources that are independent of the wireless transceiver. In this regard, the noted disclosure of a GPS source or hybrid GPS source is dependent on information from a GPS-enabled handset. Accordingly, Applicant respectfully submits that the

proposed combination of Brohoff and Hillis, assuming arguendo that such combination is proper, does not disclose or suggest the subject matter of independent Claim 62 or its dependent claims and this rejection should be withdrawn.

Applicant has also added new Claim 76. The invention of Claim 76 involves storing subscriber independent prioritization information, then using the subscriber independent prioritization information to prioritize information regarding multiple service providers as output to a mobile unit. For example, the present specification notes that such information regarding multiple service providers may be prioritized based on other information such as preferred service providers defined by a network administrator (see page 11). Applicant respectfully submits that using such subscriber independent prioritization information to prioritize the output information such that information regarding a service provider that is more distant may be prioritized relative to a closer service provider is not disclosed or suggested by the cited patents.

A sincere effort has been made to place this application in condition for full allowance. Early notice of such allowance is respectfully requested.

In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

MARSH FISCHMANN & BREYFOGLE LLP

By: 

Kent A. Fischmann, Esq.
Registration No. 35,511
3151 South Vaughn Way, Suite 411
Aurora, Colorado 80014
(720)562-5501

Date: November 21, 2002



APPENDIX

RELATED APPLICATION INFORMATION

This application is a continuation-in-part of U.S. Patent Application No. 09/119,493, filed July 20, 1998, the contents of ~~both of which are~~ is incorporated by reference herein as if ~~each were~~ set forth herein in full.

MARKED UP VERSION OF CLAIMS

40. (Twice Amended) A method for providing location based services in a wireless network comprising:

receiving, on a network platform in communication with a subscriber using a mobile unit via an air interface, a service request requesting information regarding said location based services;

obtaining, on said network platform, location information regarding a location of said mobile unit determined using a network assisted location finding technology, said technology being operative to provide location information regarding said mobile unit based at least in part on a position of the mobile unit in relation to a known location of a stationary ground based network device in communication with the mobile unit;

identifying, on said network platform, a number of candidate service providers from a database of service providers, including first and second service providers and associated further identifying first and second service provider information associated with the first and second service providers based upon said determined location of said mobile unit;

storing ~~prioritization~~ selection information relating to ~~a priority~~ selecting from said number of candidate service providers a subset of service providers for use in presenting service provider information to a subscriber;

RECEIVED
DEC 03 2002
Technology Center 2600

based upon said stored ~~prioritization~~ selection information, ~~prioritizing~~ selecting one of said first and second service provider information; and

outputting ~~both~~ said selected one of first and second service provider information to said mobile unit, free from the other one of said first and second service provider information, -based upon said step of ~~prioritizing~~ selecting.

41. (Twice Amended) A method as set forth in Claim 40, wherein output information regarding a plurality of said candidate service providers is provided to said mobile unit and said output information is provided based on prioritization information relative to a priority for presenting said information to a subscriber output said prioritization information relates to establishing said priority based on proximity of particular service providers to said mobile unit and said prioritizing comprises:

providing said location information in a form suitable for distance determinations;
determining a first distance between said mobile unit and said first service provider;
determining a second distance between said mobile unit and said second service provider;

performing a comparison of said first and said second distance; and

determining a presentation of said ~~first and second service~~ output information based upon said comparison.

42. (Twice Amended) A method as set forth in Claim 40, wherein output information regarding a plurality of said candidate service providers is provided to said mobile unit and said output information is provided based on prioritization information, wherein said prioritization information is based on one of proximity, financial information, service preference information, and a subscriber usage profile.

43. (Twice Amended) A method as set forth in Claim 40, ~~wherein said prioritizing~~ further comprising accessing stored subscriber defined prioritization criterion information.

53. (Twice Amended) A method as set forth in Claim 40, wherein ~~one of said~~ step of storing and ~~prioritizing~~ is performed on said network platform.

56. (Twice Amended) A method for use in providing location based services to a communications network user in a wireless network, comprising:

receiving, on a network platform in communication with a mobile unit via an air interface, a service request requesting information regarding said location based services;

obtaining, at said network platform, location information regarding a location of said mobile unit ~~determined using a network assisted location finding technology, said technology being operative to provide location information regarding said mobile unit based at least in part on a position of the mobile unit in relation to a known location of a stationary ground based network device in communication with the mobile unit~~ from a location source independent of said mobile unit;

identifying, on said network platform, first and second service providers and associated first and second service provider information based upon said location information of said mobile unit;

providing said location information into a form suitable for distance determinations;

determining the distance of each of said first and second service providers relative to said mobile unit; and

outputting both said first and second service provider information to said mobile unit, wherein a manner of said outputting ~~being~~ is based upon said step of determining distances.

62. (Twice Amended) A method for providing location based services to a subscriber of a wireless network, wherein network location information is available within an area of the network based on a network assisted location finding technology, said network assisted location finding technology being operative to determine a location of a wireless transceiver of said subscriber within said area of the network, said determining based at least in part on a relationship between said location of the wireless transceiver and a known location of a fixed network structure in said area of the network, said method comprising:

receiving first location information regarding said wireless transceiver from a first location finding system, independent of said wireless transceiver for locating wireless units within said network;

receiving second location information regarding said wireless transceiver from a second location finding system, independent of said wireless transceiver and different from said first location finding system, for locating wireless units within said network, ~~wherein at least one of said first location information and said second location information is based on said fixed network device in communication with the mobile unit;~~

determining a location of said wireless transceiver by accessing a database that includes said first location information from said first location finding system and said second location information from said second location finding system;

identifying at least one service provider and associated at least one service provider information based upon the determined location of said wireless transceiver; and

transmitting said at least one service provider information to said wireless transceiver, wherein said wireless transceiver is used to provide to the subscriber the at least one service provider information based on a current location.

63. (Amended) A method as set forth in claim ~~55~~62, wherein said location of said wireless transceiver is determined by using said first location information from said first location finding system and said second location information from said second location finding system.

64. (Amended) A method as set forth in Claim ~~56~~62, wherein said determining step comprises a triangulation analysis.

65. (Twice Amended) A method as set forth in Claim ~~56~~62, wherein said determining step comprises ~~calculating~~ a point in a polygon analysis.

67. (Twice Amended) A method for providing location based services in a wireless network comprising:

receiving, on a network platform in communication with a subscriber using a mobile unit via an air interface, a service request requesting information regarding said location based services;

obtaining, on said network platform, location information regarding a location of said mobile unit determined using a network assisted location finding technology, said technology being operative to provide location information regarding said mobile unit based at least in part on a position of the mobile unit in relation to a known location of a stationary ground based network device in communication with the mobile unit, said location information regarding said mobile unit being received on said network platform, said location information originating at least in part from location determination equipment separate from said mobile unit;

converting said location information from a first form into a second form wherein said second form includes geographical coordinates for said mobile unit;

identifying, on said network platform, utilizing said converted location information in said second form, a first service provider and associated first service provider information based upon said determined location of said mobile unit; and

outputting said first service provider information to said mobile unit.

69. (Twice Amended) A method as set forth in Claim 67, wherein said step of outputting comprises using a prioritization criterion ~~is used for said converting~~, said ~~criterion being selected from including one of~~ financial information, service preference information, subscriber usage profile information, and ~~subscriber's~~ information regarding the willingness to receive complementary service information.

76. (New) A method for providing location based services in a wireless network comprising the steps of:

receiving, on a network platform in communication with a subscriber using a mobile unit via an air interface, a service request requesting information regarding said location based services;

obtaining, on said network platform, location information regarding a location of said mobile unit determined using a network assisted location finding technology, said technology being operative to provide location information regarding said mobile unit based at least in part on a position of the mobile unit in relation to a known location of a stationary ground based network structure;

identifying, on said network platform, first and second service providers and associated first and second service provider information based upon said determined location of said mobile unit wherein said first service provider is farther from said mobile unit than said second service provider;

accessing stored subscriber independent prioritization information relating to a prioritization for presenting service provider information to a subscriber, said stored prioritization information establishing a basis independent of proximity for prioritizing said first and second service provider information;

based upon said stored prioritization information, prioritizing said first and second service provider information, wherein said first location information is assigned a higher priority than said second location information; and

outputting both said first and second service information on said mobile unit based upon said step of prioritizing.